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09/609,532	06/30/2000	Katsuya Nagashima	Q59989	2000

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EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2634

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DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/609,532

Applicant(s)

NAGASHIMA, KATSUYA

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8</u> . | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed January 20 2004 have been fully considered but they are not persuasive.

2. Argument: Claims 1 and 9 recites a weighting means for applying weighting to correction values after detection of an external loop; and a deciding means for deciding an order of priority for a plurality of correction values. As described, for example, at page 11, lines 1-14 and in reference to Fig. 1, when a correction scheme such as Automatic Gain Control (AGC) is used on data after detection, the correction values are inputted to adders 6, 7, 8, 23, 24 and 33.

Response: At page 11, lines 1-14 and in reference to Fig. 1, the Automatic Gain Control (AGC) is not described or taught in the specification.

Argument: Tsumura '506 does not, and can not, apply weighting for correction values after detection of an external loop, such as AGC.

Response: Tsumura's (US 5550506) demodulator suggests the weighting means (26 & 27 FIG.3) for applying weighting to correction values (inputs of 24), and the 24 is supplied with a tentative demodulated signal which is equal an output signal from the circuit 15 (that is the output of the demodulator section wherein provides the feedback refer to FIG.3) to detect the phase error based on the tentative/feedbacked demodulated signal to produce a phase error signal (column 4 lines 45-60). Tsumura (5511097) teaches the external loop (109-107-5b/5a FIG.1) and adapting itself to various radio wave environment and the kinds of noise (column 1 lines 6-14, column 2 lines 20-30 & lines 30-35) by using the weighting means (22 FIG.2 in the demodulator) and the deciding the order of priority means (25 FIG.2 selecting the smallest error).

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It is obviously the feedback loop of '506 is the external loop taught by '097 for correcting phase/frequency of the correction values as cited in the claim.

The limitations (e.g. the AGC in the arguments) in the specification do not read in the claim when these limitations are *not recited in the claim* (see MPEP 2111).

The response presented applies with equal force to dependent claims 2-8 and 10-16.

The rejections of claims 1-16 are upheld as following:

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7 & 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumura (US Patent 5550506) in view of Tsumura (US Patent 5511097).

Regarding **claims 1 & 9**, except explicitly specify the feedback, Tsumura ('506) discloses all subject matter claimed: a demodulator and its methods for a mobile phone (column 1 lines 10-14), comprising: a received error rate improving means (22/23-2 FIG.3) which improves the received error rate by weighting for differences at symbols before (22-1 FIG.3) and after (22-3 FIG.3) a symbol to be demodulated at the present time and applying feedback for symbols; a weighting means(26 & 27 FIG.3, column 4 line 45-column 5 line 6, wherein the MOD and multiplier apply weighting for correction) for applying weighting for correction values after detected of external another loop; a deciding the order of priority means (15 FIG.2/3, column 3

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lines 40-46, column 5 lines 35-45) for deciding the order of priority for plural correction values.

However Tsumura ('097) teaches the feedback loop (107 FIG.1) and adapting itself to various radio wave environment and the kinds of noise (column 1 lines 6-14, column 2 lines 20-30 & lines 30-35) by using said weighting means and said deciding the order of priority means. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the Tsumura ('097)'s teachings in Tsumura's demodulator, to specify explicitly the external feedback loop indicated in Tsumura's demodulator ('506 column 4 lines 45-60 where the ideal phase difference based on a tentative demodulated signal from the judging circuit 15) and to adapt itself to achieve the objective of Tsumura ('506)'s demodulator (column 1 lines 10-18, lines 50-54).

Regarding **claims 2 & 10**, Tsumura ('506) discloses a delay circuit and an adder (22/23-2 FIG.3) for obtaining detected phase difference at said symbol point to be demodulated at the present time.

Regarding **claims 3 & 11**, Tsumura ('506) discloses delay circuits and adders for obtaining phase differences at symbol points before (22-1 & 23-1 FIG.3) and after (22-3 & 23-3 FIG.3) said symbol point to be demodulated at the present time.

Regarding **claims 4 & 12**, Tsumura ('506) discloses operation circuits (26 FIG.3) which obtain received quality being difference between each phase difference among symbols obtained at said delay circuits (22-1 FIG.3) and said adders (23-1 FIG.3) and an ideal value (column 4 lines 45-60 wherein the first phase difference is the phase difference obtained at the delay circuit and the adder, and the ideal phase difference is the ideal value, they produce the first phase error that is the output of the operation circuit).

Regarding **claims 5 & 13**, Tsumura ('506) discloses the adders (28 FIG.3) input the received quality obtained at the operation circuits to detected phase value of each of said symbol points before and after said symbol point to be demodulated at the present time by feedback operation.

Regarding **claims 6 & 14**, Tsumura ('506) discloses further comprising: a dividing circuit (15 FIG.3) Which demodulates correctly with using outputs from the adders (14 FIG.3), in case that the detected phase difference at the symbol point to be demodulated includes difference by not detecting phase correctly (column 3 lines 41-47).

Regarding **claims 7 & 15**, Tsumura ('506) discloses the weighting circuits making feedback amounts attenuate (column 5 lines 2-3, wherein the coefficient is a positive value and less than one that attenuate the amounts) in order to avoid divergence of operated results in case that said feedback amounts are large when the adders input the differences by the feedback operation.

5. Claims 8 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsumura (US Patent 5550506) in view of Tsumura (US Patent 5511097), further in view of Saito (US Patent 5260975).

Regarding **claims 8 & 16**, further Saito teaches the logic circuits (65-67 FIG.10) which perform bit expansion at input terminals of the adder (column 12 line 61-column 13 line 5, wherein the latch and the adder perform the bit expansion that the decimal part or the subordinate bits from the latch inputted to an added). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the logic circuit taught by Saito in the Tsumura's ('506)'s demodulator at where the phase data (including the ideal phase difference

data inputted to the MOD) directly connected as one of the inputs of the adder to perform bit expansion, to have an excellent bit error rate performance under thermal noises or fading (column 1 lines 5-12 '975).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 703-305-3416. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
March 24, 2004



CHIEH M. FAN
PRIMARY EXAMINER